ATTITUDE TOWARDS ACHIEVEMENT IN SCIENCE AT THE HIGH SCHOOL LEVEL

UGC CARE APPROVED

ABSTRACT

The objective of this study was to find out the students' attitude towards achievement in Science at the high school level. The normative research method was used for this study. The sample consists of 50 Tamil and English medium students of IX standard from St. Joseph's high school, Trichy. Attitude towards achievement in science scale developed by Cheung (2009) was administered. The result reveals that there is a significant difference in the attitude towards achievement in science of IX standard students.

Keywords: *Attitude, Achievement in Science, High School Level.*

Introduction

The learning outcomes of science can be broadly classified into three domains: Cognitive, affective and Psychomotor. The cognitive and psychomotor domains are mostly concentrated by the Science teachers, while the affective domain in science education is left unaddressed due to lack of time for completing the required syllabus and conducting revision exams to make the students pass through the examination. The importance of affective domain could be traced through the study of review of literature. If the affective domain is concentrated it could increase the retention significantly and if the delivery of the subject material is associated with emotions of students' sense of belonging in the science learning environment could be enhanced. This affective domain includes learning out-comes such as student's attitude, motivation, values, self-esteem, and self-efficacy. The importance of these outcomes is studied in detail in the literature, but teachers' interest in exploring this affective domain and working on curriculum construction is still lacking. Even National Science Curriculum making a note of working on affective domain, however, it has not been translated into teaching and learning process and in no way, it has been part of assessment procedures at the school level

In affective domain, Attitudetowards achievement inscience is an important variable in science. Indeed, the positive attitude toward achievement in science influences the achievement in science and developing positive attitude toward Science as a school teacher is one of the major responsibilities entrusted. There are various factors that influence students' attitude towards science topics taught in school, Science teacher attitude towards teaching Science, the students' previous achievement in the subject. Here this study focuses on the Attitude towards achievement of science at the high school level.

Need and significance

Potvin and Hasni (2014) had synthesized all the research articles published between the year 2000 and 2014 and observed that the students' attitude towards achievement in Science and Technology is in steady decline, as they move from Elementary education to High School Education. This research invited to address the issue of the gap between what the school focuses on to teach and what the students really wanted. Firstly, to begin with this particular study is to know the liking towards achievement in science lessons of the students at the High School level.

Secondly, Attitude towards learning of Science subject is of two dimensions, namely, intellectual accessibility and emotional satisfaction. Often the intellectual accessibility is considered the most and emotional satisfaction is taken for granted. Here paying more attention to the positive correlation between positive attitude towards learning of Science and achievement in Science is the need of the hour of Science teachers. Hence this study will focus more on

J. FABIOLA RICCI
Ph.D. Research Scholar, Department of Education, Bharathidasan University, Trichy, TamilNadu, India
Dr. A. EDWARD WILLIAM BENJAMIN
Research Supervisor, Department of Education, Bharathidasan University, Trichy, TamilNadu, India

affective dimension of Science education at the High School level.

And thirdly, this study would serve as a diagnostic assessment of students' attitude towards achievement in Science for Science teachers, which will provide the details of the factors influencing the students' attitude towards achievement in science and the areas of concern in curriculum development, learning and teaching and if the same tool is administered on the same selected sample in a longitudinal period of treatment, by studying the significant difference in the students' attitude towards achievement in Science at the High School level.

Objective

1. To find out the significant difference in the affective, cognitive and behavioural attitudinal responses in the attitude towards achievement in Science with respect to the medium of study.

Method of study

A normative survey research method is used for the present study.

Sample of the study

The sample of the present study consists of 50 students of class IX selected from St. Joseph's high school, Trichy by random sampling technique from the population of 170 students.

Research Tools

Attitude towards Achievement in Science Lessons Scale developed by Cheung (2009) with four subscales, namely, a) Liking for theory part in Science lessons (3items), b) Liking for Science laboratory work (3 items), c) Evaluation beliefs about Science (3 items) and d) Behavioural tendencies to learn Science (3 items) was administered on the selected samples.

Statistical Techniques

In the present study, various statistical measures such as Descriptive and Inferential statistics i.e., Mean, Standard Deviation and t-Test, have been used to analyze the data.

Hypotheses

Hypothesis 1: There is no significant difference in liking for theory part in Science lessons among IX standard students.

UGC CARE APPROVED

Table 1

Liking for theory part in Science lessons of IX standard Tamil and English medium students

Medium	N	Mean	S. D	Calculated 't'-value	Remark
Tamil	25	12.08	3.42	1.15	Not Significant
English	25	13.12	2.81		

Table 1 shows the results for liking for theory part in Science lessons of IX standard Tamil Medium (Mean = 12.08 and SD = 3.42) and English Medium (Mean = 13.12 and SD = 2.81) students. The greater the magnitude of 't' greater the evidence against null hypothesis.Here the 't' value (1.15) which is below the standard table value 1. 96 and hence, the null hypothesis is accepted.

Hypothesis 2: There is no significant difference in liking for science laboratory work among IX standard Tamil and English medium students.

Table 2

Liking for Science laboratory work of IX standard Tamil and English medium students

Medium	N	Mean	S. D	Calculated 't' value	Remark
Tamil	25	13.68	2.05	1.06	Not Significant
English	25	14.4	2.62		

Table 2 shows results for liking for science laboratory work of IX standard Tamil medium (Mean = 13.68 and SD = 2.05) and English medium (Mean = 14.04 and SD = 2.62) students. The greater the magnitude of 't' greater the evidence against null hypothesis. Here the 't' value (1.06) which is below the standard table value 1. 96 and hence, the null hypothesis is accepted.

Hypothesis 3: There is no significant difference in evaluation beliefs about Science among IX standard Tamil and English medium students.

Table 3

Evaluation belief about Science of IX standard Tamil and English medium students

Medium	N	Mean	S. D	Calculated 't'-	Remark
Tamil	25	12.16	3.1	3.00	Significant
English	25	14.76	2. 92		

Table 3 shows results for evaluation beliefs about science of IX standard Tamil Medium (Mean = 12.16 and SD = 3.08) and English Medium (Mean = 14.76 and SD = 2. 92) students. The greater the magnitude of 't' greater the evidence against null hypothesis. Here the 't' value (3.00) which is above the standard table value 1. 96 the null hypothesis is rejected.

Hypothesis 4: There is no significant difference in behavioural tendencies to learn Science among IX standard Tamil and English medium students.

Table 4

Behavioural tendencies to learn Science of IX standard Tamil and English medium students

Medium	N	Mean	S. D	Calculated 't'-value	Remark
Tamil	25	12.64	2. 95	2.09	Significant
English	25	14.2	2.32		

Table 4 shows results for behavioural tendencies to learn Science of IX standard Tamil Medium (Mean = 12.64 and SD = 2. 95) and English Medium (Mean = 14.20 and SD = 2.32) students. The greater the magnitude of 't' greater the evidence against null hypothesis. Here the 't' value (2.09) which is above the standard table value 1. 96 the null hypothesis is rejected.

Hypothesis 5: There is no significant difference in the attitude towards achievement in science among IX standard Tamil and English medium students.

UGC CARE APPROVED

Table 5

Attitude towards achievement in Science of IX standard Tamil and English medium students

Medium	N	Mean	S. D	Calculated 't'-value	Remark
Tamil	25	50.56	8.28	2.45	Significant
English	25	56.52	8.56		

Table 5 shows results for attitude towards achievement in Science of IX standard Tamil Medium (Mean = 50.56 and SD = 8.28) and English Medium (Mean = 56.52 and SD = 8.56) students. The greater the magnitude of 't' greater the evidence against null hypothesis. Here the 't' value (2.45) which is above the standard table value 1. 96 the null hypothesis is rejected.

Findings

1. There is no significant difference between IX standard Tamil and English medium students in their liking for the theory part in science lessons and liking for science laboratory work. But there is a significant difference between IX standard Tamil and English medium students in their evaluation belief about science, behavioural tendencies to learn science and attitude towards achievement in science.

Educational Implication

1. The mean scores of subscales liking for science lessons and liking for science laboratory work being lesser than the other two subscales is worrying as these are the affective components of the attitude construct. The affective component role in the Science education needs special emphasis (Flaherty, 2020). Rose et al. (2018), study revealed that the affective component of attitude predicted the cognitive and behavioural component of attitude. Bauer (2016) showed that students with positive affective characteristics were more of autonomous learners; they like science because of their intrinsic motivation. The low mean scores on this affective component denotes the students are disinterested and they are to be pushed hard to learn Science. This invites to revisit the teachers' curriculum construction and teaching methods used.

2. Montes et al. (2018) study showing decline in the students' attitude towards achievement in science as they proceed from lower to higher grades is threatening. The teacher has the responsibility not to let the students' attitude towards achievement in science drop low at the next grade. The teacher has the responsibility to see the factors that influencing the students' attitude towards achievement in science and develop a methodology to foster positive attitude towards achievement in science learning at the High School level.

Conclusion

Science unfortunately gained the reputation as a boring, abstract and difficult subject. Now the issue for the Science teacher is that he has to handle the students who have less positive attitude towards achievement in science. If the students' attitude towards achievement in science is not positively enhanced, all the efforts of the teacher would be in futile. So, he has an opportunity to enhance positive attitude towards achievement in science by concentrating on the affective domain of the attitude towards achievement in science. The teaching faculty which is not so aware of this affective area, need to be instructed in the on-going in-service Programme. The government which focuses only on the knowledge, understanding, application and skills in cognitive and behavioural domain also need to focus on the affective domain. Only when, the affective component of attitudinal construct of Attitude towards achievement in science can be addressed by the teachers to enhance a positive attitude towards achievement in science which will bring the desired achievement in Science in their present learning environment as well in the future carrier. The significant difference in Student's attitude towards achievement in Science at the High School level with respect to medium of instructions and investigation is good.

References

1) *Cheung, D. (2009). Developing a scale to Measure Student's Attitude towards achievement in science Lessons. International Journal of Science Education, 31(16), 2185-203.*

2) *Cheung, D. (2009). Evaluating Students Attitude toward Science Lessons to Enhance Teaching in the Secondary School. Education Quimica, Vol. 22(2), 117-122.*

3) *Edward William Benjamin et al. (2021). Achievement in mathematics among IX standard students in Trichy district. EPRA International Journal of Multidisciplinary Research, Vol. 7(4), https://doi.org/10.36713/epra6641*

4) *Milan Kubiatko et al. (2017). Pupils' Attitude toward Science in Two types of Czeh schools. EURASIA Journal of Mathematics, Science and Technology Education. https:/ doi.org/10.12 9th73/Eurasia.2017.0123 9tha.*

5) *Ozden, Mustafa (2008). An Investigation of Some Factors Affecting Attitude toward Science in University Education, Essays in Education, Vol. 24, Article 8. https:// openriver.winona.edu/eie/vol4/iss1/8.*

6) *P. Kousa, R. Kavonius and M. Aksela. (2018). Low-achieving students' attitudes towards achievement in Science and Science teaching. Science Education Research and Practice, Vol 1 9th, 431-441.*

7) *Potvin, P., & Hasni, A. (2014). Analysis of the Decline in Interest towards School Science and Technology from Grades 5 through 11. Journal of Science Education and Technology, 23,784-802.https://doi.org/10.1007/s10 9th56-014- 9th512-x*

UGC CARE APPROVED

Owned & Published by Rev. Dr. S. Sebastian,S.J. from St. Xavier's College of Education, Palayamkottai, Tirunelveli -2. Printed by G. Kanagasabapathi at Muthuletchumi Press, 123-G, Trivandrum Road, Palayamkottai - 627 002.
Editor : **Rev. Dr. S. Sebastian, S.J.**

This journal is available online visit www.sxcejournal.com